Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

SOCIETY OF ARTS.

FRIDAY, JULY 29th, 1853.

ADVERTISEMENT DUTY.

In the House of Commons on Thursday, in last week, the Chancellor of the Exchequer said that the Government had deferred to the opinion of what was undoubtedly a real majority of that House with regard to the advertisement duty. A bill would be introduced, and he hoped there was no reason why it should not become law at the conclusion of next (the present) week, or, at the latest, at the beginning of the following week.

It should be remembered that very shortly after the establishment of the Union of Institutes, the Council of the Society took into consideration the injurious effects of this tax, amongst others, upon the welfare of the Institutes, and the serious obstacle it presented to the promotion of the objects for which they were established, and they took steps for bringing the subject before the Legislature, with a view to its abolition. At the Conference held at the Society's house in June last, attended by 160 representatives from 270 Institutions in union, numbering 90,000 members, the subject was brought prominently forward and fully discussed. All united in showing the injury resulting from the tax, and a resolution condemnatory of it was unanimously passed by the meeting. The Council at once brought the proceedings of this Conference before the Chancellor of the Exchequer.

The Council must congratulate the Institutions upon the success which has attended their efforts, and they believe that the result has been very materially accelerated by the influence that this unanimous opinion of men so qualified to judge as the members of Institutions, could not fail to exert.

THE PAPER DUTY.

QUERIES PROPOSED BY THE SOCIETY OF ARTS, MAY 4th, 1853.

No. 3.—To Manufacturers from Paper, and Manufacturers using it.

The following are the replies which have been received to the third set of Queries on this subject. In Nos. 33 and 34, pp. 401 and 413, of the Journal, the answers which had been forwarded by different Paper Manufacturers and Wholesale Stationers were published.

1. Does the Duty press most heavily upon those qualities of Paper used for manufacturing and commercial purposes?

Mr. C. D. Collet says, "I doubt it, or the manufacturers and tradesmen would be more anxious for its repeal."

Mr. J. Chretien says, "Writing papers, drawing papers, and fine papers for printing, may be supposed to average 10*d*. per pound. Duty on the same, 1½*d*., and 5 per cent, or 1·575 pence per pound, equals $15\frac{75}{100}$ per cent. Common papers, used for packing fancy boxes, book covers, say at 36*s*. per cwt. Duty on the same, 14*s*. $8\frac{0}{100}$*d*., or $40\frac{83}{100}$ per cent. Showing that the duty on papers used in manufacture, and for packing manufactured articles, is nearly 260 per cent. heavier than on papers used for luxury and ornament; in addition to which, the low-priced articles are often manufactured from articles of home growth, and loaded with clay, whitening, &c., things costing little more than the expense of digging. I see that the *Weekly Times* newspaper is printed on paper made from straw, and when at Guildford a few days back, I was furnished with "charges for carriage" also on straw paper. Were the duty taken off, the consumption of it would be greater, and our mercantile marine would be increased by the extra vessels engaged in the guano trade."

Messrs. Dobbs, Kidd, and Co. say, "The duty presses most on brown papers, and, of course, the users thereof; it is our opinion that if the Excise duty was taken off brown papers, and foreign brown papers let in free, our brown paper makers would do quite well, as the carriage would be equivalent to a protective duty on such heavy material."

Messrs. Jeffrey, Allen, and Co., say, "As to paper-hangings, the duty presses unduly upon the consumers of the low-priced article, inasmuch as a piece (twelve yards) of paper-hangings sold for 6*d*., pays nearly 1*d*. duty; whilst a piece of elaborated work on satin paper, which may be sold for 12*s*., pays but 1½*d*. duty. The paper-hanging manufacturer feels the pressure of the tax, because much of the low-priced paper, intended for the poorer classes, is enormously consumed by parties who ought to buy a better article."

Messrs. J. and J. Leighton say, "Of the duty on paper, although it presses heavily upon the 'publisher's bookbinder,' who is exclusively engaged in binding or boarding vast numbers or editions; it does not so materially affect the extra bookbinder, whose work is costly, and is expended upon the literature of all nations and periods. The duty on paper and mill-boards is a small item on the binding that costs a guinea, whilst it is a large one upon the shilling volume. The duty upon the paper in 'Layard's Nineveh' is unimportant; whilst that upon the picture newspaper and penny publication is an extensive consideration. That the removal of the duty would aid the manufacture, and develope uses hitherto unheard of, we do not doubt; but, as extra bookbinders, we feel its retention by no means inconvenient."

Mr. W. Taylor says, "Unquestionably."

Messrs. H. N. Turner and Co. say, "It appears to us that the Excise duty paid on paper, does not materially affect the trade of paper-staining, except in the very lowest qualities; and in such paper-hangings, the foreigners do not compete with us. The chief inconvenience of the Excise duty on paper arises from the superintendence of the officers."

Mr. J. C. Wakefield says, "Yes."

Mr. C. Warwick says, "The duty presses very heavily on papers used for packing and business purposes: take, for example, brown and cartridge papers; the former worth a third, and the latter half the value of writing papers—but the duty being paid by weight is the same on all; and the common papers being treble the weight and not half the value, the injurious inequality is manifest."

Mr. C. Whittingham says, "Yes, generally, but in my own case the duty does not press heavily, as I use nearly all fine papers."

An Anonymous Correspondent says, "Yes, particularly on paper and boards which are used in the manufacture of boxes."

2. Does it affect injuriously many branches of trade into which these qualities enter as raw material? Please to specify any branches of trade so affected.

Mr. C. D. Collet says, "Tea, sugar, iron."

Mr. J. Chretien says, "It does; the fancy-box trade—a trade in which 4,000 persons are supposed to be employed in Paris only. The Excise regulations seriously interfere here, and paper is substituted by split timber—a very inferior article, and imported at a merely nominal rate of duty. In the article of boxes for sweetmeats packed in boxes, one gross of boxes, capable of containing three pounds of comfits, at 10*d.* per pound, or 2*s.* 6*d.*, cost 2*s.* Another description of box, capable of containing one pound of goods, value about 1*s.*, costs from 6*d.* to 1*s.* per dozen. It seriously affects business in the lower neighbourhoods, the cost of paper sometimes being weight for weight, four times the price of articles packed in it, for the lower class of manufactures, viz., alum, soda, ashes, plaster, and numerous other articles used in the Arts. In consequence of the duty, paper is again and again used for many purposes in succession, thereby diminishing the amount of labour in collection, carriage, and distribution; exclusive of which, and duty, goods of this class might be produced at about one-third of the present market price. At the present time, waste papers are selling at from 2*l.* 10*s.* to 7*l.* per ton, and even, in some instances, at 12*l.* per ton."

Messrs. Dobbs, Kidd, and Co. say, "We are not aware of any such."

Mr. W. Taylor says, "Every trade to which paper is an article of necessity, more especially pasteboard-makers, box-makers, printers, and booksellers."

Mr. J. C. Wakefield says, "Yes, particularly goods for export, for which all goods are separately put in papers; also the general business, where very large quantities are used in packing; also, hot-pressers and calenderers, whose consumption is large."

Mr. C. Warwick says, "The English manufacturer would adopt a variety of modes of setting off his goods, similar to the French, who have set us the example of using cartoons and fancy boxes for all rich dresses; and if the duty was removed, so that cardboard was reduced, a vast increase in its consumption would be the consequence. In order now to produce a box at a moderate price, thin wood is pasted over with a thin paper, but they become valueless immediately from their composition. It gives the French manufacturer a decided advantage, and they greatly excel us in the getting-up of their goods in this way.

Mr. C. Whittingham says, "It certainly must."

An Anonymous Correspondent says, "We think it lessens the consumption of rags."

3. Are there any trades completely closed by the operation of the tax, and, if so, what are they?

Mr. C. D. Collet says, "You will find this out when the abolition of the duty creates new branches of industry."

Mr. J. Chretien says, "Pasteboard-makers are nearly entirely shut out of the market as producers of board for railroad tickets and rough cards. By the Inland Revenue regulations, pasteboard-makers must only use new paper either for the middle or outside sheets; they must get their paper weighed, and pay duty on any connecting substance they use, or actually make false returns. But practically, in the article of railroad tickets and some other goods, the manufacturers work without entering or having their factories licensed by the Inland Revenue Board, thereby being able to use printed waste papers for middles, a greater quantity of loading matter, and to enable them legally to do it they must cut the edges, making cardboards, not pasteboard. The operation of the law is also injurious. I know one instance of an entry as a mill; it had been entered over a twelvemonth. The officers have a journey of between eight and nine miles, the distance as the crow flies being, by Ordnance map, seven miles. The revenue has received the amount of the license, but not one penny for duty. Had it not been for the duty a quantity of material lying there would long ere this have been in the market, thereby causing outlay for labour and carriage. There is also in the same district a large quantity of natural production, the removal of a portion of which for paper making would drain a large area, and render it suitable for agricultural purposes, thereby conferring a double benefit.

Messrs. Dobbs, Kidd, and Co., say, "We are not aware of any."

Mr. W. Taylor says, "Not that I am aware of."

Mr. Warwick says, "I know of no trade completely closed by the operation of the tax; but as the scaleboard is not adapted for ornamental purposes, and the duty on cardboard being so enormous on the cost of the material, it materially prejudices the artizan, and a trade that would employ thousands if our fruits were put up as the French; our biscuits and fancy confectionary would vie with theirs; and in passing any grocer's it may be seen how much more general this custom of putting in boxes small quantities is becoming, and the excellent and easy mode of sale by this means."

Mr. C. Whittingham says, "I do not know of any. Experiments are prevented by the trammels of the Excise regulations, and consequently improvements and discoveries are greatly hindered."

4. Are any others subjected to an unfair foreign competition?

Messrs. Carter, Vavasseur, and Rix, say, "We think that the competition between English and French figured silk manufacturers is carried on under circumstances more unfavourable to the former than need be, on account of the Excise duty levied on paper. To make a figured silk cards are indispensable, the quantity of them depending on the size and nature of the pattern designed. A figured silk which we made lately (we believe for Her Majesty) required 8,000 cards. Twenty cards, suitable for a 600 cord machine, weigh one pound, and can be purchased for about 7*d.* Of this 1½*d.*, or about twenty per cent., is duty paid. But as the makers and wholesale dealers require a profit on their capital paid into the Excise office, as well as on the cost of the material, we shall be more nearly correct in reckoning the increase of price by the duty as twenty-five per cent. Now for cards of the same description and quality (as we have taken, for example) the French manufacturer pays only about 2½*d.* French cards have been imported at different times, but without any profitable result to the importer, as the charges for the carriage of such a bulky article, together with the import duty, have raised their price almost to a level with English cards. 8,000 cards, then, in their raw state, before coming into the hands of the card cutter, will cost the English manufacturer 11*l.* 13*s.* 4*d.*, of which 2*l.* 6*s.* 8*d.* is duty paid; while the French manufacturer will obtain the same for 4*l.* 3*s.* 4*d.* It will be seen, on comparing the prices of English and French cards, that the Excise duty does not make all the difference, at any rate not directly; but we believe it does indirectly, for it would be difficult to show the cause why the English makers, if delivered from the burden of the duty and from the interference of the Excise office, should not make as good a card for 2½*d.* the lb. as the French maker. We look upon the duty, therefore, as operating to increase the price of cards much more than is indicated by the sum of 1½*d.* per lb. actually paid to the Excise. At present this part of the paper trade, being comparatively small and unimportant, is in the hands of a few makers, who get their own price. It is evident, therefore, that as respects cards, the English figured silk manufacturer works at a disadvantage compared with his rival. He is placed in this dilemma—he must either make a larger quantity than his opponent, in order to get back his money gone in cards; or, making the same quantity of a pattern as his opponent, he must ask a higher price for his goods. The low price of his cards enables the French manufacturer, by the same outlay of money, to obtain a greater variety of patterns than we can. It is this variety of design which constitutes his strength; he is able by this to meet all tastes, and there are almost as many shades of taste as there are wearers. Then the demand for a great variety of patterns calls forth the taste and stimulates the ingenuity of artists, who see a larger field open for their genius than we can show. As his outlay is smaller, a French manufacturer is repaid for it by making a smaller quantity of any one pattern than we can; he is thus able to turn round more quickly, to meet the changes of fashion; and is able, at less risk than ourselves, to stimulate demand by a never-ceasing, quickly-recurring novelty. Even were this obstacle to his progress (resulting from an unscientific financial system) removed, the English manufacturer of figured silk would have difficulties left sufficiently formidable to call for the energetic exercise of his utmost skill and care. The Lyons silk trade has been reared to its present perfection by the judicious attention of many generations; it has at its command an admirable organization, tending to one end—the progress of the staple in all its branches; it has an army of intelligent, well-trained operatives and ingenious machinists, with a staff of accomplished artists and chemists, and these in the midst of a people with natural good taste. The English have never yet brought to bear on this manufacture the science or taste which are the foundation of their rival's excellence. To do so now is the task before them, and they will have work enough to accomplish it, without being clogged with difficulties which their own Government have alone the power to remove. By remitting the paper duty, a most important concession would be made to the fancy branch of the silk trade, which would be enabled to compete on something like fair ground with its imposing rival. The chief objectors to the remission of the duty will be found among the wholesale paper dealers themselves, who look on the payment of the duty in the light of an investment of capital, and therefore feel no desire to have part of their capital unemployed, or seeking a fresh investment. They also consider that the larger the capital required for the trade, the less liable are they to an increase of competition by fresh persons engaging in it."

Mr. C. D. Collet says, "The book-trade with America; the Americans could not so easily print our books, if we could sell them cheaper."

Messrs. Dobbs, Kidd, and Co., say, "Not that we know of."

Mr. W. Taylor says, "None that I can think of, but box-makers; foreign boxes made of paper paying no duty (and otherwise cheaper than British), being admissible into this country at a duty of 10 per cent.; while similar ones made at home have paid 70 or 80 per cent. duty on the material to the Excise."

Messrs. H. N. Turner and Co. say, "We cannot answer for other manufacturers, where paper is largely consumed; but the English paper-maker is, in our opinion, in unfair competition with any foreign country that prohibits the exportation of their rags. In other words, free trade in rags is essential to free trade in paper."

Mr. J. C. Wakefield says, "Yes; shawl manufacturers, silk-weavers, and others, who use large quantities of cards for every pattern, which comes in direct competition with the foreign goods, where no duty is paid on boards."

Mr. C. Warwick says, "Fancy box-makers are subject to a most unfair competition; the article they use is subject to an Excise duty of 80 per cent. on its value; whilst the French, who are very large manufacturers in every variety, can send them to this market subject to 10 per cent. duty."

An Anonymous Correspondent says, "Boxes have been allowed to come in in a half manufactured state, thereby entering into competition with us."

5. Please to state any facts relative to the above, or any other points bearing on this inquiry.

Mr. C. D. Collet says, "Consider how much unexpected good has been obtained by unfettering the manufacture of glass, and from that you may form some idea of the effect likely to be produced by abolishing the duty on paper."

Mr. J. Chretien says, "The duty materially injures the agricultural population by nearly tripling the sale-price of paper. Were the duty taken off, a quantity of material used for litter might be judiciously applied, causing thereby an evener demand for labour in the agricultural districts. During the hay and harvest season, the supply hardly equals the demand; but from September to May, any one passing could see that labour is superabundant. In Flanders, it is a general practice to attach a workroom to the labourer's cottage. The duty and regulations likewise bar any material efforts towards improvement, preventing the introduction of papers into the market as specimens, as they could not be returned without a loss of nearly cent. per cent. They restrict trades, similar to those of papier maché, by barring the use of a material under a quarter of an inch in thickness. They shut out the employment of women and children in towns; as, could paper be bought, re-made, and sold, without another duty, the quantity collected would be very great, thereby giving employment to those who had learned no art."

Messrs. Heywood, Higginbottom, Smith, and Co., say, "The duty presses most heavily on paper-stainers, some firms paying upwards of 10,000*l.* per annum in duty; if the duty was repealed, the trade would increase to a wonderful extent in the common or cheap paper-hangings. The duty as at present levied presses most unfairly on the working classes; as the duty on a paper worth 4*d.* per lb. is the same as on the finest quality, worth 7*d.* or 8*d.* per lb."

Mr. W. Taylor "would deprecate the removal of the duty, unless a drawback was allowed upon entire reams with labels showing duty to have been paid; and for this reason, that he, in common with many others, has to keep in stock numerous sizes, substances, colours, qualities, and kinds, amounting to several thousand reams, not having which, or nearly so, would ruin his trade and greatly inconvenience his customers; and having which, would involve a most serious loss."

Messrs. H. N. Turner and Co. say, "Since it has been proposed to reduce the duty on foreign paper imported into this country, foreign paper-makers have called upon us, and asserted that if this proposition is carried into effect, they will be able to undersell the English makers."

Mr. J. C. Wakefield says, "I firmly believe the consumption of paper would be nearly doubled were all restrictions removed."

Mr. C. Warwick says, "The following is one of the glaring inconsistencies of our Excise on paper: A paper-maker may cut paper on his own premises, and these cuttings are again used for making paper, and no duty is taken on these paper-cuttings; but if the same paper is sent to an envelope-maker, or manufacturing stationer, no drawback is allowed on their cuttings, amounting in some cases from one ton to one ton and a half per week; these cuttings are sold again to paper-makers, who thus have to pay the duty on that which, if made in their own mills, would not be liable to duty at all."

Mr. C. Whittingham says, "Whatever the evil may be, arising from the amount of the duty, I believe that it is trifling compared with that arising from the obstacles and impediments created by the Excise regulations, and which are necessary to secure and collect the duty; and that the only way to obviate the greater evil is to repeal the duty."

An Anonymous Correspondent says, "We think the total repeal of the tax would benefit trade generally."

SALT—THE SOURCES FROM WHENCE IT IS OBTAINED, AND THE PROCESSES INVOLVED IN ITS MANUFACTURE.

[*Continued from page* 429.]

BY H. OWEN HUSKISSON.

A solution of salt, when pure, should not be precipitated by a solution of carbonate of ammonia, followed by a solution of phosphate of soda; thus proving the absence of any magnesian salt. A solution of 9 grains in distilled water is not entirely precipitated by a solution of 26 grains of nitrate of silver, and has the following properties:—It crystallizes in colourless, anhydrous cubes, or more rarely in regular octohedrons. The crystals are often grouped together into pyramids or steps, and in the salt pans are frequently so aggregated as to form hollow, four-sided pyramids, technically termed "hoppers." Obtained by slow or spontaneous evaporation, the crystals are solid cubes. It has generally a foliated structure, and a distinct cleavage; but it has also, sometimes, a fibrous structure. The massive salt has a vitreous lustre. The crystals are soluble in about 2½ parts of water at 60°, and its solubility is not sensibly increased by heat; it is nearly or quite insoluble in absolute alcohol. Its specific gravity varies from 2·0 to 2·5. The taste is what is usually known as salt, and is pure saline. When heated it decrepitates (owing to the expansion of a little interstitial water), more especially the coarse grained, or bay salt; at a red heat it fuses, and on cooling concretes into a transparent brittle mass; at a still higher temperature it volatilizes, and tinges flame of a blue colour. Chloride of sodium, when free from all foreign matters, is permanent in moderately dry air, but ordinary salt is slightly deliquescent, owing to the presence of small quantities of chloride of magnesium. Rock salt is transcalent or diathermanous—that is, it transmits radiant heat much more readily than many other transparent bodies, as glass, Iceland spar, quartz, &c.

Its symbol is $\left\{\begin{matrix}\text{Na.} & \text{Cl.}\\ \text{(Natrum)} & \text{(Chlorine)}\end{matrix}\right\}$; its equivalent weight, 58·5; and has the following composition:

	Atoms.	Eq. Wt.	Per cent.
Sodium	1	23	39·3
Chlorine	1	35·5	60·7
	1	58·5	100

The existence of soda in it was first shown by Duhamel. Glauber first obtained hydrochloric acid from it, and Davy first demonstrated its true constitution. It is known to be a sodium salt by its solution producing no precipitate with the phosphates, carbonates, ferrocyanides, and hydrosulphurets; also by the yellow tinge it communicates to the outer flame of the blowpipe, alcohol, and combustible matter. As a chloride, it is known by a solution of nitrate of silver throwing down a curdy white precipitate, which blackens by exposure to light, is soluble in ammonia, but insoluble in nitric acid. The presence of soda is often determined by purely negative evidence, all the salts being soluble. The only other substances likely to be confounded with it are the salts of potash, from which it is distinguished by its causing no precipitate with perchloric or tartaric acid, or with bichloride of platinum; also several of the salts of soda, which are efflorescent, while the corresponding ones of potash are deliquescent. It may also be added that chloride of sodium is devoid of odour and bleaching properties.

With regard to its physiological effects, salt in small quantities is injurious to very few, if any, plants, and to some it appears beneficial; used moderately, as a manure to certain soils, it is of great service. In large quantities it is injurious, though unequally so, to all plants. It is a necessary constituent of the drink of marine animals, and is also relished by most land animals. Lyell states that the bones discovered beneath the "Licks," in America, belong to wild animals that came in herds to taste the salt, and in their eagerness to obtain it pressed upon each other, and sunk in the soft parts of the bog. Dr. Fleming says that the eagerness with which quadrupeds and birds press towards salt springs and lakes indicates a constitutional fondness for salt. In the Ruminantia the salutary effects are especially observed. Morioud, in his work on "Veterinary Pharmacy," says that it contributes powerfully to prevent in these animals the bad effects caused by rainy seasons and wet pasturage, as well as damaged fodder. Given to animals intended for fattening, it gives more consistence to the fat, and more taste to the meat. In Brazil are salt licks, called "carreiros," which increases the value of the land very much. The herds of cattle, which often consist of 50,000 head, grow lean and are reduced to bad condition if they cannot get salt, which they lick with great eagerness, and which the proprietor has to find at a great expense if there is none on his land. To the lower animals it appears to be offensive and injurious; hence, rubbed upon meat, it prevents the attacks of insects, and when applied to the skin of leeches causes vomiting. Chloride of sodium serves some essential and important uses in the animal economy. It is employed by the people of all nations, from the most refined to the most barbarous, but the quantity taken varies with different individuals. It is an invariable constituent of healthy blood. Dr. Stevens, in his work on "The Blood," shows that in certain states of disease, as the cholera, there is a deficiency of saline matter, and in those cases it has a very dark appearance. It is doubtless of essential service in the bile, tears, and other secretions. Some of the properties of the sanguineous fluid, such as its fluidity, stimulating qualities, and power of self-preservation, are probably owing to its saline constituents. It is said that persons who take little or no salt with their food are very subject to intestinal worms, and Mr. Marshall, in the *Medical Journal*, tells us of a lady who had a natural aversion to salt; she was most dreadfully afflicted with worms during the whole of her life. Lord Somerville, in his Address to the Board of Agriculture, states that the ancient laws of Holland ordained that criminals should be kept on bread alone, "unmixed with salt," as the severest punishment that could be inflicted in their moist climate. The effect was horrible. These wretched beings are said to have been devoured by worms engendered in their own stomachs. In its local operation it is an irritant. Taken into the stomach in moderate quantities, it promotes the appetite, assists digestion and assimilation; if taken too freely occasions thirst, and long continued produces scurvy. In large quantities, as in the dose of a table-spoonful or more, it excites vomiting; and thrown into the larger intestines produces purging. In very large doses it acts as an irritant poison; a man swallowed a pound in a pint of ale, and died within twenty-four hours.

It is impossible to estimate duly the great value of this article, whether it is regarded scientifically, politically, or commercially. In some countries its value is so great that lumps of salt are used instead of money; in others, the mines and springs are worked by the government, and produce great part of the yearly revenue. It is of immense importance as a source of soda Soda has been used, from time immemorial, in the manufacture of soap and glass,—two chemical productions which employ and keep in circulation a vast amount of capital. The process of obtaining soda from chloride of sodium, is the one given by Leblanc in the last century, and still adopted, with a few minor improvements, to the present time. This grand process consists in converting the chloride of sodium into a sulphate of soda, by means of sulphuric acid, and decomposing the latter salt by means of coal and carbonate of lime, upon the floor of the reverberatory furnace. The duty upon salt checked for a time the full value of this discovery; when it was repealed, its price was reduced to its minimum, and the cost depended upon the sulphuric acid. This manufacture, says Liebig, may be regarded as the foundation of all our modern improvements in the domestic arts; and we may take it as affording an excellent illustration of the dependence of the various branches of human industry and commerce upon each other, and their relation to chemistry. This manufacture became of immense importance during the wars of Napoleon; France, before it was discovered, purchased soda from Spain, at an expenditure of twenty to thirty millions of francs annually. Marseilles possessed, for a time, the monopoly; the destruction of which, by Napoleon, excited the hostility of the people to his dynasty, who became favourable to the restoration of the Bourbons. France derives at the present time more than twenty millions of francs from this manufacture; other countries quite as much, or even more. The attempts to modify, or entirely supersede the process of Leblanc, have been incessant, and of the most varied character. One of the latest is that of Mr. Longmaid, for decomposing common salt by means of iron pyrites. It was ascertained that with a pyrites containing 2 or 3 per cent. of copper, sulphate of soda was economically produced by the ignition of the former with chloride of sodium,—the recovery of the copper, converted at the same time into sulphate of copper, contributing to the profit. A great benefit of this process is, that it dispenses with the preparation of sulphuric acid in the leaden chamber.

In the manufacture of soda from salt by Leblanc's process, it is first converted into sulphate of soda. The action of the sulphuric acid producing hydrochloric, or muriatic acid, to the extent of one and a half times the amount of the sulphuric acid employed. At first the profit upon the soda was so great that the muriatic acid was not collected; in fact, it had no commercial value. A profitable application of it was soon discovered: it is a compound of chlorine; and this substance may be obtained from it cheaper than any other source. Chlorine possesses powerful bleaching properties; but was not employed to its full extent until obtained from the residuary muriatic acid, from which it is prepared, by mixing it with peroxide of manganese and sulphuric acid, as a dense, suffocating yellow gas. As it was inconvenient to transport it to distances, either as liquid muriatic acid, or gaseous chlorine, it was combined with lime, forming a hypochlorite of that substance which is well known in commerce as chloride of lime, or bleaching powder. This compound possesses all the potent properties of chlorine, and is used for the purposes of disinfection, bleaching linen and cotton goods, rags for the manufacture of paper, &c. But for this process of bleaching, Great Britain could not have competed with France and Germany in the price of cotton goods. In the old process of bleaching, every piece must be exposed to air and light for several weeks during the summer season, and kept moist by manual labour. Now a single establishment near Glasgow bleaches 1,400 pieces of cotton daily throughout the year. The hire of so much land in England, necessary in the old operation, would require an enormous amount of capital, and would greatly increase the cost of bleaching, to pay the interest for the large sum expended. This would not be so much felt in Germany; but the cotton stuffs bleached with chlorine suffer less in the hands of skilful workmen; and in some parts of that country, they are adopting it, and find it advantageous.

It is used in many countries to raise a portion of the revenue. Rome was subject to a salt duty (*vectigal salinarum*). The *gabelle*, or code of salt laws in France, was most oppressive, and caused a vast amount of crime. In this country, a tax was first levied upon salt in the reign of William the Third. In 1798 it was 5*s.* a bushel, which increased to 15*s.*, or about thirty times the cost of producing it. It was repealed in 1823. Though this tax was regarded as impolitic, and checked the progress of manufactures and the arts, yet many clever political economists think a small duty might be levied on it without serious inconvenience. When the duty was at the highest, it produced about 1,500,000*l.* yearly. It is used in the arts as a coarse glaze for pottery; gives hardness to soap; improves the whiteness and clearness of glass. In dyeing, it is used as a mordant, and for improving certain colours; it preserves melting metals from oxidation, by defending their surface from the air; it is employed with advantage in some assays, and enters into many other important processes. To the chemist it is valuable as a source of soda and chlorine, and their compounds, from which he obtains the chloric acid, and combines with potash to form chlorate of potash, so largely used in the manufacture of lucifers. To the agriculturist it is useful as a manure and dressing to certain lands. It is used at the table as a flavouring or seasoning agent, being a necessary article of food, essential for the preservation of health and the maintenance of life. It is also largely used in the preservation and curing of alimentary substances. In medicine it is used as a vomit, purgative, to restore the saline constituents of the blood, alterative, astringent, dentifrice; as an external application to sprains and bruises; its tonic power proves useful in dyspepsia, and promotes digestion, and in correcting the weakened state of the intestines, which favours the propagation of worms. Dissolved in water, it forms a stimulating bath, and is a chemical antidote against poisoning by nitrate of silver.

Necker estimated the consumption of salt in those provinces of France which had purchased an exemption from the "*gabelle*" (*pays franc rédimés*) at about 19½ lbs. (English) annually for each individual; the people in this country consume about 22 lbs. On this supposition, and taking the population at 18,500,000, the entire consumption will amount to 407,000,000 lbs., or 181,696 tons. Exclusive of the home consumption, we annually export large quantities. The present price is about 14*s.* to 16*s.* per ton: in France, it is about 10 sous per kilogramme (2½ lbs. avoirdupois).

The remaining portion of Mr. Huskisson's paper treats of the geographical distribution of salt, and its produce and commerce in various places and countries. As this portion of the subject is treated of more in detail in Mr. Bollaert's paper, which was also rewarded by the Society, it is proposed to give the facts communicated by that gentleman in a future Number.

PARLIAMENTARY PAPERS.

THE Report from the Select Committee of the House of Commons appointed "to inquire into the expediency of Distributing Gratis, under certain Regulations, a Selection from the Reports and Returns printed by order of the House of Commons, amongst the Literary and Scientific Institutions and Mechanics' Institutes throughout the United Kingdom; and to inquire whether any alteration should be made in the mode in which such documents are sold, to make them more accessible to the community," has just been printed.

The Committee state that they have examined witnesses selected from the metropolis, from the manufacturing districts of Lancashire and Yorkshire, from the west of England, and from Ireland and Scotland; all of whom agreed that great advantage would accrue from a general diffusion of the most interesting and instructive Parliamentary Papers. This opinion was confirmed by the numerous petitions presented to the House, amounting to 272 in number, and bearing 15,284 signatures.

Mr. Baines, the President of the Yorkshire Union of Mechanics' Institutes, stated to the Committee that, in his opinion, the communication of Parliamentary Papers would elevate the character of the Institutions, check the spread of vulgar errors and prejudices, and stimulate thought and inquiry. The Rev. Dr. Booth thought, on public grounds, the country should know what was done in Parliament; that as Parliament had thrown open to the public what was said in Parliament, it ought also to give the means of access to know what was done in Parliament. Mr. Harry Chester, the Chairman of the Institutes' Committee of the Society of Arts, recommended the distribution of a selection of Parliamentary Papers "rather for the promotion of the public interest than for the benefit of the Institutions themselves." "I do not wish," he said, "to have them made privileged bodies; but I conceive that it would facilitate legislation, and promote the public interest, if Parliamentary Documents on important public subjects could be systematically distributed throughout the country, and it seems to me that these Institutions are bodies to which they might with the greatest advantage be sent." The same witness reported the great interest that was evinced by the public in the Reports of the Committee of Privy Council on Education. Copies of these Reports were now sent to all the Institutions in Union with the Society of Arts, and to the Yorkshire Union. As many as 10,000 copies of these documents had sometimes been given away. It appeared from the evidence of Professor Solly, that the Reports of the Board of Health, of the Department of Practical Art, and of the Government School of Mines, were also now distributed in a similar manner. From the evidence of Dr. Hudson it would appear that in the Institutions with which he had been connected no interest had been hitherto manifested in these Reports, but the Committee attribute this indifference to the defective manner in which they have been placed before the members. A miscellaneous mass, collected without care, and thrown together without arrangement, having been sent in many cases long after the interest of the subjects upon which they treated had passed away.

"The Committee were therefore of opinion, that an earnest desire to obtain Parliamentary Papers existed on the part of numbers of popular Literary Institutions, and that a judicious distribution of these papers, in accordance with well-considered regulations, might be advantageously sanctioned by the House. They recommended that the distribution should at first be conducted on a moderate scale, and that the supply should, if possible, be short of the demand.

"Great care, however, should be bestowed upon the selection. An indiscriminate mass of Reports would be of little or no value, and their bulk would soon cause them to be regarded as an incumbrance. The same selection, however, would not be adapted to all localities. Subjects interesting in an agricultural district, might be entirely neglected in one devoted to manufactures; and the Reports that would specially interest a maritime town might be little appreciated in an inland district. The Committee, therefore, considered it essential that, in any distribution of these documents, the particular wants of each locality should be considered, and that no Reports, except those of universal interest, should be sent to all Institutions.

"The Committee recommended, however, an exception to this rule with respect to Free Public Libraries;" to which they thought, "that, upon application from the managing body, the Parliamentary Papers should be sent free of all charge, immediately upon publication.

"The Committee had been confirmed in the opinion they had expressed of the advantage of diffusing such documents, by the practice in this respect of the United States' Government. The publication and distribution of Papers by the State Legislatures appeared to be conducted on a similar scale of liberality with that of Congress. The Legislature of New York has lately published for general distribution, an elaborate Natural History of that State; and it appears that similar proceedings are usual amongst the State Legislatures.

"The Committee further state, that from the evidence of Mr. Hansard, it appeared that the cost of 250 extra copies of two-thirds of the documents printed by Parliament (taking the Session of 1852 as a guide), would be only 1,000*l.*

The following are the recommendations made by the Committee:

1. "That a Select Committee of five members be appointed at the commencement of each Session, of which two shall form a quorum; and that to this Committee all applications for Parliamentary Papers from free

Libraries, Mechanics' Institutions, or other public Institions established for literary purposes be referred.

2. "That, on the receipt of any such application, the Committee shall direct an inquiry into the character of the Institution, the number of its members, the accommodation it can afford for Parliamentary documents, and enabling the public to consult them; and generally into any circumstances which, in the judgment of the Committee, may afford a guarantee that the books presented shall be carefully preserved, and rendered as accessible as possible to the public.

3. "That with this information before them the Committee report what Institutions are best entitled to receive the Parliamentary Papers, and select such Papers as they consider best adapted for distribution, regard being had to the particular interests of each locality, and that no more than one Institution in the same town or district unless under particular circumstances, be entitled to the privilege; that on such Report being agreed to by the House, the Printing Committee make arrangements as to the additional number of copies which may be required.

4. "That the Committee be empowered to forward the Reports and Papers selected for distribution, free of postage, to the several Institutions, and to impose such conditions as in each particular case they may think fit for their due preservation, and for facility of public access to them.

5. "That each volume so distributed bear a stamp, stating that it is to be preserved in the Institution.

6. "That an annual Report of the proceedings of the Committee be laid before the House."

BEET-ROOT SUGAR.

THE following valuable Table, showing the progress of the manufacture of sugar from beet-root in the Zollverein States in the years 1847—49, is extracted from the Journal of the Polytechnic Institute of Bavaria for March.

	1847—8.		1848—9.		1849—50.	
	No. of Factories.	Cwts. of Sugar.	No. of Factories.	Cwts. of Sugar.	No. of Factories.	Cwts. of Sugar.
1. Prussia—						
a East Prussia ...	2	24,764	2	26,260	2	24,342
b West Prussia ...	—	—	—	—	—	—
c Posen	8	177,011	8	118,116	8	135,126
d Pommerania ...	5	154,701	5	142,715	5	138,240
e Silesia	24	960,857	29	1,038,849	29	1,581,246
f Brandenburg ..	3	119,993	4	168,338	3	123,098
g Saxony	56	4,622,791	69	6,345,293	69	6,490,218
h Duchy of Anhalt	9	540,480	10	789,185	10	861,696
i Westphalia ...	—	—	—	—	—	—
k Rhine provinces	—	—	—	—	—	—
Total in Prussia	107	6,600,597	127	8,628,756	126	9,353,966
2. Baden	2	523,537	2	698,243	2	1,286,243
3. Wurtemberg ..	2	270,382	2	207,570	2	357,551
4. Brunswick ...	2	87,296	2	134,156	2	145,485
5. Thüringia	3	63,417	4	91,568	3	131,016
6. Bavaria	6	58,258	5	59,900	6	104,115
7. Saxony	2	30,766	2	27,694	2	52,925
8. Kur Hesse ...	3	42,519	3	48,977	3	49,614
9. Gr. Du. Hesse	—	—	—	—	—	—
10. Nassau	—	—	—	—	—	—
11. Frankfort-on-the-Maine	—	—	—	—	1	36,638
Total in Zollverein States ...	127	7,676,772	147	9,896,864	147	11,517,553

GERMAN PATENTS.

TABLE, showing the number of Patents granted in the Zollverein States during the last ten years, copied from the Journal of the Polytechnic Institute of Bavaria for May.

	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852
Prussia.........	55	67	72	55	78	72	80	87	57	?
Bavaria.........	77	125	124	112	155	97	97	115	97	77
Wurtemberg..	—	25	22	18	12	8	8	16	26	?
Saxony.........	12	10	16	31	30	29	34	39	49	73
Baden	—	5	4	9	5	6	8	2	8	9
Duc. of Hesse	14	—	5	9	11	7	3	6	1	—

CULTIVATION OF FLAX IN INDIA.

THE Secretary of the Agricultural and Horticultural Society of Bengal, writing on this subject, says: "The subject of flax cultivation in Bengal has not been lately before the Society; nor am I aware if any attempts have been recently made to prepare *fibre* from the plant, though its growth for the sake of *seed* has increased of late years, in proportion to the augmented demand. About twelve years ago the subject of this important staple was brought prominently to the notice of the Society by several members who were desirous of adding another useful fibrous material to those already exported from India. I remember it being then stated, that parcels (similar to musters exhibited to the Society, and which are still in its Museum), raised principally in the province of Bahar, were considered by London brokers as of *good* quality, and valued by them at a fair figure, comparatively with Belgian flax. But from the fact of the culture having been soon afterwards abandoned, it may be inferred that though the first experiments showed well, the cultivation did not pay when conducted on a more extensive scale: and this, I believe, arose from its having been undertaken in too expensive a manner; whereby the parties engaged were not only considerable losers, but others were deterred from entering on the speculation. Such, I recollect, having heard at the time; but I may have been misinformed.

"Whether if the cultivation were undertaken again on a less costly scale, and care and attention bestowed on the preparation of the fibre by practical men, it would prove sufficiently remunerative to induce a continuance of it, I am not prepared to say. I fear the climate of Bengal and Bahar, *in ordinary seasons*, is not so propitious to the growth of the flax plant as that of Belgium or Russia; for the same degree of heat which tends to produce such a superior oil-yielding seed, may cause a shorter, harsher, and more brittle fibre. Flax, as you may be aware, is with us a cold season crop, the seed being sour soon after the termination of the periodical rains, about the close of October, and the stalks gathered at the end of February, or the commencement of the warm weather.

"It may be, notwithstanding what has been stated above, that the culture of flax, and preparation of its fibre, would have received more attention at the hands of agriculturists in Bengal, if the demand for other fibrous materials had not increased so considerably during the last few years. One in particular I may refer to, 'Jute,' the produce of *corchorus olitorius*, which can be raised and prepared for the market at so low a figure when compared with flax, and the demand for which has increased so considerably, that it has naturally attracted much attention. But besides this, and 'Sunn,' (*crotalaria juncea*), we possess other fibrous materials which, from their excellent qualities, are likely at no distant day to prove useful substitutes for hemp and flax."

DRAWING COPIES, MODELS, ETC., FOR INSTITUTIONS.

It is important for Mechanics' Institutes, and other Institutions of a similar character, to know that they are entitled to share in the privileges which the Government Department of Science and Art affords to National and other public schools, in obtaining drawing copies, models, casts, and materials, at a very reduced cost.

The great importance of elementary drawing to all classes of the community, in all relations of life, is now generally recognized; the first step to be taken to elevate public taste in the appreciation of correctness of form, is to cause drawing to become a part of national education. The Department of Science and Art is desirous of assisting as far as possible, in promoting the distribution of the means of accomplishing this object; but as the indiscriminate gift of examples to all applicants might lead to abuse, it is necessary to require some guarantee that the examples will be duly appreciated, which the mere request to have them does not imply.

The principle which governs the whole proceedings of the Department in all its branches, is to afford partial aid; and to encourage, but not supersede, public exertions, in promoting education in art. Thus the means of study in the Museum of Ornamental Manufactures are afforded—lectures are given, and students are enabled to obtain the best instruction in all the schools by payment of low fees in aid of the expenses; and it is considered that the same principle should be observed in the distribution of examples. It has therefore been resolved that the Department shall have the power to assist schools with samples of copies, models, and examples for teaching drawing, upon the condition that the applicants are willing to pay half the prime cost of them. By this means, when a school is willing to subscribe 1*l.*, the Department will furnish specimens of the value of 2*l.*, and so on, as far as the Parliamentary grant will permit.

A list of the specimens of drawing copies, models, casts, and materials, which the Department is prepared to furnish on these terms, may be obtained of the Secretary of the Department of Science and Art, Marlborough-house, London. It must be distinctly understood, that the privilege of purchasing these specimens can be obtained only by public and not private schools, and not by individuals.

HOME CORRESPONDENCE.

CALICO-PRINTING.

Hollingworth, Mottram in Longdendale,
July 12th, 1853.

Sir,—With reference to my invention for printing in ten or more colours in correct register, which was rewarded by the Society, and an account of which was printed in the Society's Journal of the 8th inst., I am desirous of correcting an erroneous opinion which some persons entertain that the gutta-percha pressure bowls will not bear the temperature of the printing-room, but will soon become soft and consequently useless. This mistake appears to have arisen from an idea that the printing-room is required to be of an elevated temperature, whereas such is not the case. The printing-room, if well arranged, will seldom exceed 60° Fahrenheit, and never requires any artificial heat. Any excess of temperature above the degree mentioned is a positive disadvantage, as the fibres of the cloth when dry will not absorb the mordant so readily. The drying stage, to which the textile fabric passes on leaving the printing-machine, is necessarily elevated to a high temperature, but is always kept distinct and separate from the printing-room, either in the story immediately above or in a room adjoining, a small aperture only being left for the transit of the piece; and as with my invention no revolving blankets are used, no return of heat from the drying stage can be communicated to the printing-room from that medium.

This explanation will, I trust, suffice to show that any apprehensions of the inefficiency of the pressure-bowls from the above-mentioned cause are quite groundless. I may further state, in practical illustration of my statement, that I have had seven printing-machines fitted up with the bowls in constant work for the last two years; and although the temperature of the printing-room has occasionally been elevated to near 100° Fahrenheit by the direct action of the sun's rays through the windows, the gutta-percha bowls have not exhibited the slightest tendency to become soft from such increased temperature.

The only precaution which it is necessary to take consists simply in properly attending to the lubrication of the journals of the copper cylinders, and thereby preventing the generation of friction at that point. This, if neglected, would raise the roller to a high temperature, which would act on the surface of the bowl in contact, and injure its smoothness and elasticity.

Attention to this precaution involves but little trouble on the part of the workman, and for this trouble we save in our own printworks 100*l.* per annum for each machine by the adoption of the principle of the gutta-percha bowls and the disuse of blankets and lappings. Besides this, we are enabled to produce finer and better work, and possess other advantages, enumerated in my former communication to your Society.

I am, Sir,
Your obedient Servant,
John Dalton.

POPULAR LECTURERS.

Sir,—You will perhaps allow one who is intimately acquainted with the state of most of the Institutions in the south and west of England, to make a few brief remarks on a subject which has lately been much discussed in your Journal.

The difficulties in the way of a centralized arrangement for supplying the country with lecturers are probably more than any of your correspondents anticipate. Many of the Institutions in the north, and most of the Institutions in the south of England, have no lecture-room of their own, and can only obtain the use of rooms on certain evenings. In most cases a good audience can only be obtained on a certain evening or evenings in the week—these evenings being frequently the same in adjacent towns. These two circumstances will for ever render it necessary that the secretaries of the respective Institutions (and not any general secretary) should have the fixing of lecture evenings. With regard to the terms of lecturers, it is only necessary to appeal to the experience of many Institutions to show that price and quality do not always correspond. The high terms of London lecturers may be referred partly to the circumstance of these lecturers having a fixed residence or occupation in London, requiring their frequent passage to and from the City. A lecturer of economical habits, with no other occupation, who could devote his whole time to his profession, might supply provincial Institutions with lectures at nearly half the rate charged by London lecturers with equal profit to himself. Experience proves that London lecturers are not always the best expounders (admitting the eminence of some of them as men of science); and their terms, generally speaking, will never come within the reach of the great mass of Institutions. Most Institutions with which I am acquainted cannot, consistently with their permanent interests, afford more than from 1*l.* to 1*l.* 10*s.* per lecture. From twenty to thirty Institutions in Devonshire about two years ago were supplied by the Western Literary and Scientific Union with lectures at the rate of 1*l.* each. The lecturers were generally occupied five times a week, and their arrangements were such as to render their travelling expenses inconsiderable.

With regard to the Society of Arts recommending a number of lecturers to the choice of provincial Institutions, there can be no objection to the plan, provided care is taken to prevent any tendency to *monopolization.* The most impartial method would be one somewhat similar to that adopted by the College of Preceptors. The Society of Arts might appoint a number of gentlemen to hear a series of *trial lectures* by any who might choose to deliver them, and award certificates according to their merit; otherwise the Society of Arts would have a difficulty in ascertaining the *practical qualifications* of the number of lecturers whose services would be required. Meantime the safest course to be adopted by those societies who are ignorant of the merits of lecturers is to encourage no one who cannot produce evidence of his having lectured on *repeated occasions* to a number of respectable Institutions, with the Committees of some of which they ought to correspond previously to entering on an engagement.

One of the Lecturers of the Western
Literary and Scientific Union.
Isle of Sheppy, 18th July, 1853.

SOCIETY OF ARTS' PREMIUMS.

Sir,—I am glad to see that this affair of Mr. Saxby's lock has at last raised the question whether, as Mr. Tomlinson puts it, "the progress of the industrial arts may not be more effectually promoted by other means than the bestowal of medals and premiums."

I must say, I was surprised at the Society returning to this system last year, after it had been suspended for several years, and that interval occupied by the proceedings of the Great Exhibition. For I fancy there is no doubt of the truth of the following passage in *Fraser's Magazine* of last November: "What makes all this (the waste of time on the business of the Juries) the more provoking is, that it is no longer any secret that those who directed the affairs of the Exhibition saw quite as clearly, and quite as early, as other people that the prizes were a mistake, and ought never to have been instituted; but it was nevertheless determined to go through with the business, out of the notion that foreigners had only consented to exhibit their goods on the faith that these decorations should be a part of the Exhibition scheme."

If you could secure a sufficient number of competent and impartial judges, with nothing else to do but to sit at the Society of Arts, and examine the things sent in for premiums, it might be possible to avoid such gross blunders as that which has given rise to this discussion. But as these conditions are by no means likely to be fulfilled, it is hardly worth while to consider whether, even then, the attempt to encourage inventors by prizes would be successful. The truth is, that inventors want something else a great deal more than either prizes or encouragement: and that is, information as to what has been invented before, and either failed or succeeded. That kind of information is far from easy to obtain even for those who wish to obtain it, and have access to books; for this reason among others—that the writers of mechanical books do not think it worth while to fill their pages with descriptions of inventions which are known to have failed. But, besides that, it is unfortunately the case that inventors, especially those of small education, very often do not wish to ascertain, and even refuse to believe when they are told, that the thing they have invented has been invented, and found not to answer, long before. There was a good deal of evidence of this before the Patent Law Committee two years ago, and everybody who has seen much of inventors can verify it from his own experience.

Now, the Society of Arts has already in action a much better means of supplying inventors with what they really need than any prize machinery that can be devised; for it offers them the opportunity of having their inventions (if they appear to the Council to deserve it) explained and discussed at the weekly meetings of the Society, to which they specially invite those who are supposed to be conversant with the particular subject, whether members of the Society or not. No doubt these discussions might be improved, like most things in this world, and especially by limiting the paper or lecture on which the discussion is to take place to thirty or forty minutes, instead of letting it go on till the audience want to go home, and then beginning a discussion. They also have the advantage of bringing out opinions and information, without the evil of involving the Society in any decision; since we commit ourselves to nothing more decisive than the stereotyped and unmeaning vote of thanks, which, however unanimously it may be passed, is not usually admitted afterwards as conclusive evidence of the value of the "valuable services," on paper, for which it was awarded. Your obedient Servant,

E. B. Denison.

THE PAPER DUTY.

124, Fenchurch-street, and Colthrop Mills,
20th July, 1853.

Sir,—In replying to your queries last May respecting the Paper Duties, I was not aware that it was for publication. Upon reading the answers of your other correspondents to Query No. 4, it is quite evident that your Anonymous Correspondent knows nothing about the matter, or else wilfully states what is contrary to the fact, when he says that six hours is the utmost extent of detention by Excise. By referring to the Act you will see that it requires *forty-eight* hours' notice before you can charge, and twenty-four hours to remain for the chance of a survey, if further proof is required. Only last Thursday I sent an order down to my mill for some paper, which was tied up ready to send off, and by same post I wrote to the *Super*, requesting as a favour that he would charge it on Friday morning. The Act was imperative, and even the Super *could not* charge without *forty-eight* hours' notice; although it was very important, and I went down in the morning about it myself. Here is a fact easily proved. Your Anonymous Correspondent differs from me in every answer, and is about as correct in the others as in No. 4,—so much for the value of his information.

I remain, Sir,
Your obedient Servant,
Edmund Shaw.

PROCEEDINGS OF INSTITUTIONS.

Allenheads.—On July 23rd, a meeting was held in the Miners' Room for the purpose of establishing a Permanent Benefit Building Association for the mining districts of Allendale and Weardale, Mr. Sopwith in the chair; when arrangements were entered upon in conformity with views which the Chairman had fully explained at two previous meetings, one of which was occupied by a lecture on the subject. A knowledge of the correct principles of these and similar societies is of the greatest importance to the well-being of the industrious classes; and the principal members of the Libraries in these districts have made great exertions to secure the success of such Societies by having them placed on a solid basis under the revision of the most experienced actuaries. The excellent work of Mr. Scratchley on Building Societies was strongly recommended to the attention of the members present, and it was unanimously resolved to apply to that gentleman for his professional aid in the examination of the Rules and Tables.

Sevenoaks.—On Wednesday and Thursday, July 19th and 20th, Mrs. Balfour delivered two Lectures at the Literary and Scientific Institution, to overflowing audiences. That of Wednesday "On Cowper: his Life, Writings, and Genius." On this occasion the lecture was given in the morning, and the chair was taken by the Marquis of Camden. On Thursday the lecture was "Home Influence." The committee, class, and retiring-rooms connected with this Institution are now in course of erection.

TO CORRESPONDENTS.

C. W. H., received. Will appear next week.

MISCELLANEA.

New Crystal Palace, Sydenham.—The whole of the west end of the building it is expected will be finished by the end of this month, and the iron work for the east end, including the small transept roof, will be completed by the same time. The giving way of the staging for the central transept roof caused a trifling delay in that portion of the works. This accident was caused by the wind acting upon the staging whilst in an unfinished state. The tunnel is nearly finished, and the building of the Fine Art Courts is rapidly advancing. The foundations of the west wing are being proceeded with, and a large portion of the materials for both wings is on the ground. The towers are in active progress: the iron work will be ready to receive the tank next month. The apparatus for warming the building is progressing rapidly. The pumping engines are all constructed and in course of delivery. The pipes for the waterworks are being constantly delivered and laid to the various fountains. Those for the upper range are drawing towards completion. The well for supplying water to the reservoirs has been sunk and lined to the depth of 247 feet from the surface, and the artesian boring thence to the chalk is being proceeded with as rapidly as possible. The three large reservoirs are in a forward state, the chief part of their work being now completed. The difficulty of obtaining the large quantity of stone required has retarded the progress of the terrace gardens, but the contractors state, that they will be completed early in August. Extensive preparations have been made for the cascades and grand basins in the lower portion of the grounds, together with the geological illustrations, which are now in active progress.

Decimal Coinage.—The Committee have concluded the examination of witnesses, and it is understood the result will be a unanimous report in favour of the adoption of the decimal system of coinage and currency, making the pound sterling the integer, and dividing it into 1,000 units or farthings. Dr. Bowring—on whose motion in parliament the first step was taken in 1848, by the coinage of the florin, or one-tenth of a pound sterling—was the last witness examined, and gave most satisfactory evidence as to the extraordinary accuracy, rapidity, and facility with which all calculations are made and all accounts kept under a decimal system throughout the vast Chinese empire, with its four hundred millions of dependent subjects. He produced the instrument (abacus) by which arithmetic is taught in all the schools of China, and stated that a Chinese youth after a month's instruction is far more competent to apply all the rules of arithmetic to the business of life than a learner on our plans of instruction would be after the teaching of years. It was suggested in the Committee that the use in all our elementary schools of the abacus would greatly facilitate and popularise the introduction of a decimal system of currency and account.

Discovery of Amber.—Pieces of amber have for some time past been found on the coast of Courland, but in such small quantities that it was hardly considered worth while to collect them. In recently cutting a canal for draining a lake near that of Anserche, on the eastern coast of Courland, between 57 deg. 10 min., and 58 deg. 20 min. of north latitude, and not far from the Gulf of Riga, pieces of amber were found, and, on the search being continued, more pieces were picked up on the banks of the Lake of Anserche itself. At first the discovery was kept secret, as the lakes belong to the crown, and the amber was secretly sold for small sums by the persons who found it. But the inhabitants of the adjacent villages gradually became acquainted with the fact, and they made a practice of going *en masse* on Sundays to collect the amber. The priests, annoyed at seeing the churches abandoned, made inquiries as to the cause, and, on learning it, made it known to the authorities. The quantity of amber already sold by the peasants to Jew dealers, has brought them in not less than 4,000 silver roubles (the rouble is 4f. 5c.), but that is considerably less than its real value. The pieces of amber are for the most part transparent, and some of them are so large that they fetch from five to six roubles. In some of the pieces winged insects have been found.—*Daily News.*

Library of the British Museum.—A Parliamentary return shows that the estimated total number of volumes now in the library of the British Museum is 510,110. The number of volumes of each of three sets of the supplementary catalogue (exclusive of three sets of four volumes each, of indexes to long headings) is 305. Each set of 305 volumes contains 220,789 titles, calculated up to 24th June last. These titles are estimated to refer to about 135,000 volumes of printed books.

New Source of Supply of Guano.—Mr. James Caird states, in a letter to the *Times*, that an immense deposit of guano has been discovered in the Indian Ocean, between Mauritius and Calcutta. Four samples have been brought home, two of which are of superior quality, resembling the guano of Saldanha Bay. The other two are comparatively inferior; but as the samples were taken from near the surface, it is considered that they are inferior to what may be found beneath. The discoverer traversed the island in various directions, and found guano everywhere. The island is twenty miles long by seven broad, and is thus forty times the size of Ichaboe.

Washing Clothes with Steam.—The *New York Tribune* describes a machine for cleaning dirty linen by steam, by which the clothes are washed and dried ready for the wearer in less than thirty minutes. It consists of a strong wooden cylinder four feet diameter, and four and a half feet long, mounted on a frame, so as to be driven by a band on one end of the shaft. This shaft is hollow, with pipes so connected with it that hot or cold water, or steam, can be introduced at the option of the person in charge. The cylinder being half full of water, a door at one end is opened, and from 300 to 500 pieces of clothing are thrown in, with a suitable quantity of soap, and an alkaline fluid, which assists in dissolving the dirt and bleaching the fabric. When the cylinder is charged, it is put in motion by a small steam-engine, and made to revolve slowly, first one way a few revolutions, and then the other. During this operation the steam is let in through a double-mouthed pipe, somewhat in the form of the letter X, one mouth being in and the other out of the water; the steam entering the water at the immersed end, is passed through the clothes for fifteen or twenty minutes, and then escapes at the other. The steam is now cut off, the warm water drawn off, and then cold water introduced, which rinses the articles in a few more turns of the cylinder. The drying-machine seems, from the description, to be very similar to, if it be not identical with, the hydro-extractor or revolving-machine, by which water is driven out of goods by centrifugal force, invented some few years back by Mr. Seyrig, and manufactured by Messrs. Manlove and Alliott, of Nottingham. A cylinder of wire-network is made to revolve at a very rapid rate within a closed cylinder, by which all the moisture is carried to the outside case. It is said that with the washing machine one man and three women will wash from 3,000 to 5,000 pieces a day.

SUBSTITUTE FOR GUTTA PERCHA.—Dr. Riddell, officiating superintending surgeon of the Nizam's army, in making experiments on the Muddar plant of India (*asclopia gigantea*), had occasion to collect the milky juice, and found that as it gradually dried it became tough and hard, like gutta percha. He was induced to treat the juice in the same manner as that of the gutta percha tree, and the result has been the obtaining a substance precisely analogous to gutta percha. Sulphuric acid chars it; nitric acid converts it into a yellow resinous substance. Muriatic acid has but little effect upon it; acetic acid has no effect, nor has alcohol. Spirit of turpentine dissolves it into a viscid glue, which when taken between the finger and thumb, pressed together, and then separated, shows numberless minute and separated threads. The foregoing chemical tests correspond exactly with the established results of gutta percha. It becomes plastic in hot water, and has been moulded into cups and vessels. It will unite with the true gutta percha. The muddar also produces an excellent fibre, useful in the place of hemp and flax. An acre of cultivation of it would produce a large quantity of both fibre and juice. The poorest land suffices for its growth, and no doubt if well cultivated there would be a large yield of juice, and a finer fibre. A nearly similar substance is procurable from the juice of the *Euphorbia tirucalli*, only when it hardens after boiling it becomes brittle. The subject is most important; and if common hedge plants like the foregoing can yield a product so valuable, the demand for which is so certain quickly to outrun supply, a material addition will have been made to the productive resources of the country.

PARLIAMENTARY REPORTS.

SESSIONAL PRINTED PAPERS.

Par. No. *Delivered on 21st July*, 1853.

698. Plymouth Election (Further Inquiry)—Report from Committee.
759. Passing Tolls—Copy of a Letter.

Delivered on 22nd July.

744. Exports, &c.—Account.
757. British Museum—Return.
770. Sir James Brooke—Copy of Instructions.
789. Bengal—Copy of Letter.

Delivered on 23rd and 25th July.

661. Berwick-upon-Tweed Election—Minutes of Evidence.
666. Court of Burgesses (Westminster)—Return.
752. Sheibar (Africa)—Copy of Despatches.
756. Customs (Donegal and Sligo)—Returns.
758. Poor Rates (Ireland)—Return.
782. Sheriff Courts (Scotland)—Return.
783. Edinburgh Annuity Tax—Returns.
541 (1). Metropolitan Commission of Sewers—Copy of Mr. Simpson's Report.
779. Trade Licences (Ireland)—Return.
781. Tralee Harbour and Canal—Returns.
802. Ministers' Money (Ireland)—Returns, &c.
705. Devon and Dorset Railway Bill—Minutes of Evidence.
736. Railway and Canal Bills—Fifth Report from Committee.
761. Bills—Betting-Houses.
790. „ —Juvenile Mendicancy, No. 2.
791. „ —Chancery Suitors' Further Relief.
798. „ —Truck Act Amendment.
799. „ —Friendly Societies.
801. „ —Crime and Outrage (Ireland.)
796. „ —Landlord and Tenant (Ireland), as amended by the Select Committee and in Committee.
797. „ —Stamp Duties (No. 2), as amended in Committee, and on re-commitment.
807. „ —Tenants' Improvements Compensation (Ireland), as amended by Select Committee, in Committee, and on re-commitment.
808. „ Metropolitan Building Act—Further Amendment.

Jamaica (Legislative Proceedings)—Papers

Delivered on 26th July.

674. Criminal and Destitute Children—Report from Committee.
703. Gold Coast—Copies of Despatches.
795. Public Income and Expenditure (Balance-Sheet)—Account.
805. Crime and Outrage (Ireland) Act—Returns.

Pentonville, Parkhurst, and Millbank Prisons, &c., &c.—Reports.

Delivered on 27th July.

668. Metropolitan Commission of Sewers—Copy of Reports.
775. Election Petition Recognizances—Report from Committee.
660. Taunton Election—Minutes of Evidence.
730. London, Liverpool, and North American Screw Steamship Company—Return.
285. Lunacy—Seventh Annual Report of Commissioners.
809. Bills—Transportation.
811. „ —Vaccination Extension (amended.)
813. „ —Duties on Horses let for Hire.
814. „ —Duties on Hackney Carriages.

PATENT LAW AMENDMENT ACT, 1852.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

From Gazette, 22nd July, 1853.

Dated 28th May, 1853.

1322. C. H. Hill—Machinery for making hats, caps, and bonnets.

Dated 4th June.

1375. J. Chisholm—Artificial manures.

Dated 10th June.

1418. H. G. Symonds—Preserving meat.

Dated 16th June.

1468. P. A. le Comte de Fontainemoreau—Preparation of certain vegetable and alimentary substances. (A communication.)

Dated 20th June.

1510. R. Galloway—Refining sugar.

Dated 4th July.

1594. C. De Bergue—Manufacture of railway wheels.

Dated 6th July.

1607. T. Newey—Fastenings for wearing apparel.
1608. P. Erard—Steam-boilers.
1609. P. A. le Comte de Fontainemoreau—Printing-presses. (A communication.)
1610. J. Hood—Manufacture of ornamental fabrics.
1612. P. Gaskell—Elastic springs.
1613. T. W. Kennard—Iron bridges.
1614. J. Bradshaw and T. Dawson—Improved shuttle-skewer.
1615. R. A. Rüst—Pianofortes.
1616. J. Woodward—Apparatus for curling hair.
1617. W. E. Newton—Locks and latches. (A communication.)

Dated 7th July.

1618. H. Bate—Fire-escape, called the "Ignevador."
1619. J. Cheetham—Machinery for cutting velvets, &c. (A communication.)
1620. A. E. L. Bellford—Improvements in ships' logs. (A communication.)
1621. A. A. Croll—Gas apparatus.
1622. C. Vaux—Floating breakwater.
1623. J. K. Stuart—Hats.

Dated 8th July.

1624. B. Dangerfield and B. Dangerfield, jun.—Constructing and fixing railways.
1625. L. Cornides—Treatment of ores, &c.
1626. W. Marsden, jun.—Looms.
1627. W. Maddick—Treatment of madder.
1628. W. Robertson—Machinery for preparing, spinning, &c., cotton, wool, &c.
1629. J. Brett—Improvements in photography.
1630. L. Brunier—Power by compressed air.

1631. S. M. Saxby—Lowering ships' boats, &c.
1632. M. Poole—Printing-rollers.
1633. P. P. de St. Charles—Measuring distances travelled by cabs, &c.

Dated 9th July.

1635. T. Restell—Walking-stick umbrellas.
1636. E. Riepe—Turret-bells. (A communication.)
1637. E. Riepe—Moulds for steel-castings. (A communication.)
1638. H. H. Peppin—Improved joint for umbrella-sticks. (A communication.
1639. J. T. Boulé and F. Cailland—Composing and distributing type.
1640. F. Meyer—Candles and night-lights.
1641. P. A. Tourniere and L. N. de Meckenheim—Soap and washing-paste, &c.
1642. M. Sprot, jun., and R. Denholm—Pipes from plastic materials.
1643. G. P. Renshaw—Cutting and shaping.
1644. W. Skinner, jun.—Windows, shutters, &c.

Dated 11th July.

1646. P. Fairbairn—Machinery for heckling flax, &c.
1648. F. Wrede—Gas and air-engines.
1650. G. Dalton—Reverberatory and other furnaces.

Dated 12th July.

1652. J. B. Finnemore—Sofa-springs, &c.
1654. P. Cowan—Gas-fittings.
1656. A. Burns—Constructing iron ships, &c.
1658. J. Fletcher—Machinery for spinning, &c.
1660. N. Ardasseer—Driving shafting.

Dated 14th July.

1670. Hon. Sir R. Brown—Improvements in coffins, &c.
1674. A. L. J. Lechevalier St. André—Packing goods.

APPLICATIONS WITH COMPLETE SPECIFICATIONS FILED.

1662. A. W. Craig, D. Foster, and T. Valentine—Preparing wet spun yarns. 13th July, 1853.
1684. P. O'Malley—A new liquid beverage. 15th July, 1853.
1711. D. Brims—Safety apparatus for preservation of life on water. 19th July, 1853.

WEEKLY LIST OF PATENTS SEALED.

Sealed 20th July, 1853.

140. Cornelius Ward, of 36, Great Titchfield-street—Invention of a new construction of the musical instrument designated the Bassoon.
141. Cornelius Ward, of 36, Great Titchfield-street—Invention for combining the musical instruments designated the Drum and the Cymbals, in such manner as to make them one instrument, which instrument he terms the "Cymbal-Drum."
148. George Carter, of Mottingham Lodge, Eltham, Kent—Improvements in the construction of furnaces.

Sealed 22nd July.

170. Arthur Wellington Callen, of Peckham, and Abraham Ripley, of Westminster-road—Improvements in the mode of giving and transmitting multiplying rotative motion to shafts and other revolving bodies.
178. William Kendall, of Blawith, near Ulverstone—Improvements in the manufacture of boxes and similar articles, and in the machinery or apparatus to be employed therein.
210. Robert Shaw, of Portlaw, Waterford—Invention for starting, stopping, and reversing steam-engines.
258. Frederick Lawrence, of the City Iron-works, Pitfield-street, William Davison, of Halstead, Essex, and Alfred Lawrence, of the City Iron-works, Pitfield-street—Improvements in engines to be worked by steam or other fluid.
374. George Henry Bursill, of Oxford-road, Barnsbury-park—Improvements in operating upon auriferous quartz, clays, and other minerals, preparatory to, and in order to accomplish the separation of the gold and other metals; also in machinery or apparatus for effecting such improvements.
394. Adolphe Nicole, of 80, Dean-street, Soho-square—Improvements in rotary engines.
712. Charles William Siemens, of the Adelphi-terrace, and Joseph Adamson, of Leeds—Improvements in rotatory fluid meters.
910. William Ogden, of Oldham—Improvements applicable to carding-engines used for carding cotton, wool, and other fibrous materials.
1103. John Rawe, jun., of Lemaile, near Wadebridge—Invention for propelling vessels and other vehicles in the water.
1212. George Jones, of Birmingham—Improvements in ventilating mines.
1248. Edward Jones Schollick, of Aldingham Hall, Ulverstone—Improvements in obtaining motive power.
1266. William Simson, of Edinburgh—Improvements in locks.
1286. Jonathan Dodgson Carr and John Carr, of Carlisle—Invention of an improved construction of oven.
1294. William Warcup, of Lyndhurst Villa, Coronation-road, Bristol—Improvements in the construction of springs for carriages and other similar purposes.
1298. William James Harvey, of 68, South-street, Exeter—Improvements in fire-arms.
1303. William Henham, of East Peckham—Improvements in ploughs.
1318. Daniel Bateman, of Low Moor, near Bradford, Yorkshire—Improvements in carding wool and other fibrous substances, and in the manufacture of cards for that purpose.

Sealed 23rd July.

175. Donald Beatson, of Mile-end—Improvements in the means of propelling ships and other floating vessels.
176. William Nairne, of South Inch Mill, Perth—Improvements in dressing yarns for looms.
185. William Thomas Henley, of St. John-street Road—Improvements in covering, laying, and uniting wires and ropes for telegraphic purposes, and in the machinery employed therein.

Sealed 26th July.

197. Nicolas Francisque Ador, of 16, Castle-street, Holborn—Improvements in preparing plastic materials, to be used in the manufacture of fired wares, and for other purposes.
229. Francis Whishaw, of 9, John-street, Adelphi—Invention of an improved lock or system of locks.
233. Marcus Spring, of 25, Church-row, Hampstead—Improvements in apparatus for separating gold from matter mixed or combined therewith. (A communication.)
256. David Chalmers, of Manchester—Improvements in looms.
347. Isaiah James Machin, of Leigh-street—Improvements in nut-crackers.
561. Charles Breese, of Birmingham—Improvements in ornamenting papier maché, japanned, iron, china, and other hard or bright surfaces, with gold.
531. Charles Hennpage, of King's Norton, Worcester—Invention for the application of certain materials to the manufacture of coffin furniture.
811. Leopold Joseph Green, of Leatherhead, Surrey—Improvements in axletree boxes.
941. Lambert Adolphe Beauvain, of 30, Upper Charlotte-street, Fitzroy-square—Improvements in machinery for obtaining wool, silk, and fibres from fabrics, and rendering them suitable to be again employed.
1107. John Whiteley, of Stapleford, Nottingham—Improvements in warp machinery for producing ornamental and textile fabrics.
1109. Thomas Symes Prideaux, of St. John's-wood—Improvements in propelling vessels.
1182. George Stiff, of Minerva Cottage, Christchurch-road, Brixton-hill—Invention of an improved construction of printing-machine.
1183. William Thomas, of Cheapside—Improvements in weaving narrow fabrics for binding.
1249. Samuel Schollick, of Ulverstone—Improvements in ship building
1295. Alphonse Rene le Mire de Normandy, of Judd-street—Improvements in regulating the pressure of steam.
1297. Theophilus Westhorp, of the West India-road, Poplar—Improvements in the manufacture of oakum.
1334. William Brookes, of 73, Chancery-lane—Improvements in stoves and grates or fire-places. (A communication.)

WEEKLY LIST OF DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

Date of Registration.	No. in the Register.	Title.	Proprietor's Name.	Address.
July 25	3492	Tap.	Cowley and Madeley	Walsall.
,, ,,	3493	Barlow's Kaleidoscopic Meat-screen.	James Barlow	14, King William-street, City.
,, 26	3494	Guiding Parts of Cocks and Taps.	John Warner and Sons	Crescent, Jewin-street, City.
,, ,,	3495	Improved Scarificator.	James Coxeter	23, Grafton-street East, Tottenham-court Road.